



# Health Assessment for

PRELIMINARY

SCIENTIFIC CHEMICAL PROCESSING

CARLSTADT, BERGEN COUNTY, NEW JERSEY

JANUARY 4, 1989

Agency for Toxic Substances and Disease Registry  
U.S. Public Health Service

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PRELIMINARY HEALTH ASSESSMENT  
SCIENTIFIC CHEMICAL PROCESSING  
BERGEN COUNTY  
CARLSTADT, NEW JERSEY  
January 4, 1989

Prepared by:  
Office of Health Assessment  
Agency for Toxic Substances and Disease Registry (ATSDR)

Background

The Scientific Chemical Processing site is listed by the U.S. Environmental Protection Agency (EPA) on the National Priorities List (NPL). The six-acre site is a former waste processing facility which accepted various wastes for recovery and disposal. The site shut down operations in October 1980 in response to a court order. Some company officials have received fines and jail terms for illegally dumping hazardous waste. In 1979-80, a drum and contaminated soil removal operation occurred. The site is now vacant, except for two small buildings, a roll-off container holding a polychlorinated biphenyl sludge tank, several concrete slabs, and piles of construction rubble left from the demolition of other site structures.

The following documents were provided to ATSDR for review: the Hazard Ranking System Package, August 11, 1982; three Administrative Orders on Consent (CERCLA-50114, September 30, 1985; -50115, October 23, 1985; and -60102, October 1985); and the Draft Remedial Investigation Report, volumes 1 and 2, April 18, 1988. These documents form the basis of this preliminary health assessment.

Environmental Contamination and Physical Hazards

On-site soil contamination (maximum concentrations reported) consists of volatile organic hydrocarbons (VOCs) (18,580 ppm), including benzene (54 ppm), methylene chloride (124 ppm), tetrachloroethylene (4,290 ppm), toluene (3,380 ppm), trichloroethylene (2,060 ppm), and xylene (3,450 ppm); benzidine (244 ppm); petroleum hydrocarbons (81,600 ppm); polynuclear aromatic hydrocarbons (PAHs) (1,892 ppm), including benzo(a)pyrene (108 ppm), naphthalene (480 ppm), and phenanthrene (268 ppm); pesticides (264 ppm), including aldrin (57 ppm), dieldrin (57 ppm), and methoxychlor (150 ppm); polychlorinated biphenyls (PCBs) (15,000 ppm); and heavy metals, including arsenic (62 ppm), lead (2,750 ppm), copper (71,600 ppm), chromium (721 ppm), and mercury (21 ppm), zinc (44,400 ppm), and nickel (116 ppm).

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On-site groundwater contamination (maximum concentrations reported) consists of VOCs (3,600 ppm), including benzene (7 ppm), chloroform (614 ppm), 1,2-dichloroethane (473 ppm), methylene chloride (200 ppm), methyl ethyl ketone (2,000 ppm), and trichloroethylene (161 ppm); PCBs (17 ppm); PAHs (3 ppm), including naphthalene (1.2 ppm and benzo(a)pyrene (0.1 ppm); nitrobenzene (58 ppm); petroleum hydrocarbons (2,270 ppm); and heavy metals, including arsenic (1.6 ppm), chromium (0.4 ppm), nickel (0.2 ppm), and zinc (0.7 ppm).

Off-site surface water contamination in Peach Island Creek (maximum concentrations reported) consists of VOCs (0.23 ppm), including methylene chloride (0.02 ppm) and 1,1,1-trichloroethane (0.01 ppm); petroleum hydrocarbons (7 ppm); and heavy metals, including nickel (0.04 ppm) and zinc (0.15 ppm).

Off-site sediment contamination along Peach Island Creek (maximum concentrations reported) consists of VOCs (16,300 ppm), including benzene (2 ppm), chloroform (4 ppm), tetrachloroethylene (953 ppm), toluene (2,970 ppm), trichloroethylene (9,950 ppm), and xylenes (1,700 ppm); phenol (447 ppm); PAHs (34 ppm), including benzo(a)pyrene (0.8 ppm), naphthalene (20 ppm), and fluoranthene (2 ppm); PCBs (840 ppm); petroleum hydrocarbons (25,900 ppm); heavy metals, including arsenic 37 ppm, beryllium (2 ppm), cadmium (84 ppm), chromium (1,170 ppm), lead (520 ppm), mercury (139 ppm), copper (9,510 ppm), and zinc (3,680 ppm); and dieldrin (11 ppm).

Physical hazards reported on-site include demolition debris which could pose a slip/trip/fall hazard. The site is fenced on three sides and bounded by a small creek (Peach Island Creek) on the fourth, offering partial restriction to public access.

### Potential Environmental and Exposure Pathways

The potential environmental pathways of concern are contaminated groundwater, soil, surface water, and sediment. Atmospheric entrainment and dispersion of contaminated soil and sediment particulates and vapors are also pathways of concern.

The human exposure pathways of concern are ingestion, dermal absorption, and inhalation (volatile components) of contaminated groundwater; ingestion and skin contact with contaminated soils and sediments; ingestion and dermal contact with contaminated surface waters; and inhalation of contaminated particulates and vapors.

### Demographics

The site is located in a light industrial area although there are three private residences within approximately one mile of the site. All nearby

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businesses and residences are believed to be on public water supplies. Within two miles, there are 60 wells, with eleven possibly used for consumption purposes (potable supply, food processing, and undetermined use). The population within this radius is approximately 14,500.

### Evaluation and Discussion

On-site groundwater and soil have been found to be heavily contaminated with a variety of hazardous materials that could pose a public health threat by ingestion, dermal contact, and inhalation. The contamination has been documented off-site in surface water adjacent to the site and in sediments of that surface water. The magnitude of the on-site contamination suggests that a significant reservoir of contamination exists that could eventually adversely affect off-site groundwater. Apparently, five public wells have been shut down due to organic chemical contamination. Figures on the magnitude of contamination were not made available.

It was not clear whether or not the on-site soil contamination was surface or subsurface. Since Peach Island Creek is only 2-3 feet deep, it may not provide an adequate barrier to access by the public. Surface soil contamination could be a significant pathway if public access is frequent. In addition, no statements are made regarding the use of Peach Island Creek water or the degree of contact the public has with these waters.

Volatilization of VOCs from any of the environmental pathways identified so far (especially groundwater in a semi-confined space such as a shower stall) may pose an inhalation hazard. Dried sediments could become airborne if disturbed and also pose an inhalation hazard.

ATSDR has prepared, or will prepare, Toxicological Profiles on the site contaminants (with the exception of methoxychlor, petroleum hydrocarbons, and methyl ethyl ketone) noted above.

### Conclusions and Recommendations

Based on the available information, this site is considered to be of potential public health concern because of the risk to human health caused by the possibility of exposure to hazardous substances via contaminated groundwater, soil, sediment, surface water, and air.

Additional investigations of this site should include a more complete investigation of on-site contamination; an evaluation of off-site groundwater contamination and a more extensive description of the groundwater use in the area, particularly by private residential wells; a description of the fate of Peach Island Creek water and sediment; the degree of public contact with Peach Island Creek (e.g., is it used for fishing); any information regarding the degree of access the public has to the site; and the extent of off-site soil contamination.

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Further environmental characterization and sampling of the site and impacted off-site areas during subsequent Remedial Investigation and Feasibility Studies (RI/FS) should be designed to address the environmental and human exposure pathways discussed above. When additional information and data become available, e.g., the completed RI/FS, such material will form the basis for further assessment by ATSDR at a later date.